

G. Environmental Health

Racial/ethnic minorities and low-income communities bear an unequal burden of adverse environmental exposures that can influence health.¹

Environmental inequities that may result in health disparities can stem from the built environment (e.g., housing conditions, workplace risks, transportation systems); the natural environment (physical, chemical, and biological pollution of the air, water, and soil), including outdoor (e.g., hazardous waste sites, particulate air pollution) and indoor pollutants (e.g., indoor lead dust and household asthma triggers such as cockroaches, dust mites, and secondhand smoke); and geographic or regional factors of the environment (e.g., rural or urban).

Asthma

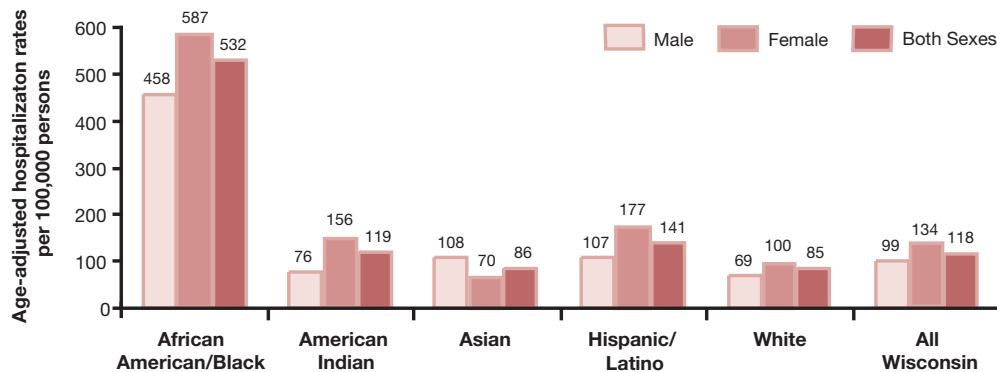
Asthma is a chronic lung condition characterized by ongoing airway inflammation that results in recurring acute episodes (attacks) of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath.² Asthma is one of the most common chronic diseases of children and the third leading cause of preventable hospitalizations in the United States.³

In Wisconsin, as in the rest of the country, racial/ethnic minority populations have a disproportionate burden of asthma as reflected in higher asthma hospitalization rates. Children are hospitalized at a higher rate than adults, and after age 15, females are generally hospitalized for asthma at a higher rate than males.

- Fewer than 100 asthma deaths per year, on average, occurred in Wisconsin during 1996–2000; 15 were among African Americans and 81 among whites. Each group (American Indians, Asians, and Hispanics/Latinos) experienced fewer than 5 asthma deaths per year during 1996–2000. The age-adjusted asthma mortality rate in whites from 1996–2000 was 1.6 per 100,000 population. For African Americans, the rate was 7.4 per 100,000 population.⁴
- During 1996–2000, Wisconsin African Americans had an asthma hospitalization rate over 6 times higher than whites and 4.5 times higher than the rate of asthma hospitalization in the overall Wisconsin population.
- African American females were hospitalized more for asthma than African American males. The asthma hospitalization rate for African American males (457 per 100,000) was 1.3 times lower than the rate for females (586 per 100,000).
- Hispanic/Latinos had an asthma hospitalization rate that was 1.6 times higher than the white population (141 hospitalizations vs. 85 per 100,000, respectively).
- The rate of asthma hospitalizations differs by age. Appendix III, Table R36 provides a comparison of age-specific asthma hospitalization rates for racial and ethnic populations.

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Figure 60: Average annual age-adjusted asthma hospitalization rates by race/ethnicity and sex, Wisconsin, 1996–2000



Source: Wisconsin inpatient discharge data, Wisconsin Department of Health and Family Services, Bureau of Health Information.
 Graph prepared by the Wisconsin Public Health and Health Policy Institute, University of Wisconsin-Madison.

Notes: Based on principle discharge diagnosis of asthma ICD-9-CM: 493.
 Rates are age-adjusted to the U.S. year 2000 standard population.

Table 48: Asthma prevalence by race/ethnicity, Wisconsin, 1996–2000

Race/Ethnicity	Percent	C.I. (±)
African American/Black	11%	(1)
American Indian	9%	(3)
Asian	6%	(2)
Hispanic/Latino	10%	(2)
White	7%	(--)
All Wisconsin	8%	(--)

Source: Wisconsin Family Health Survey, 1996–2000, Wisconsin Department of Health and Family Services, Bureau of Health Information.
 Table prepared by the Division of Public Health.

Notes: C.I.± refers to the confidence interval range within which there is a 95% chance that the true value lies. Add or subtract the C.I. value (in parentheses) to the percentage estimate to get the upper or lower limits of the 95% confidence interval, rounded to the nearest whole number.
 (--) indicates C.I. = 0.5% or less.

Childhood Lead Poisoning

Lead is toxic, especially to young children. Lead poisoning is defined as a blood lead level of 10 or more micrograms per deciliter (10 $\mu\text{g}/\text{dL}$). Lead can harm a child's brain, kidneys, bone marrow, and other body systems. Childhood lead exposure has been clearly linked to learning disabilities, reduced intelligence, impaired hearing, and reduced stature.

Risk factors for lead poisoning include:

- Family income
- Race/ethnicity
- Age of child
- Age of house

Young preschool children are at risk for lead exposure because their normal behavior includes hand-to-mouth activity. When this normal activity occurs in an environment contaminated with lead dust by paint that has either deteriorated due to deferred maintenance or has been disturbed, the child is at high risk for lead dust exposure.

Lead problems fall more heavily on members of minority groups living in urban areas. Children who are poor and are racial/ethnic minorities are disproportionately affected by lead poisoning. In communities where large concentrations of minority children reside in older dwellings (e.g., Milwaukee, Racine, Beloit, Kenosha, Sheboygan, Wausau), African American, Asian, and Hispanic/Latino children consistently have greater rates of lead poisoning than white children.⁵

In 2002, 6.1% of Wisconsin children less than 6 years of age who were tested were found to have lead poisoning (blood lead levels $\geq 10 \mu\text{g}/\text{dL}$). This is nearly 3 times the U.S. rate of 2.2% (National Health and Nutrition Examination Survey 1999–2000).

Lead screening is done in various settings, including local health departments, WIC sites, and private medical clinics. Laboratories report blood lead test results to the Department of Health and Family Services which provides results to local health departments for follow-up. All laboratories must report blood lead test results to the State, so it is possible to calculate rates of poisoning.

The Wisconsin Lead Program recommends universal lead screening of children who live in Milwaukee and Racine and targeted screening of high-risk children in all other areas of the state. Blood lead testing is not mandatory in Wisconsin except for children enrolled in Medicaid. Therefore, due to the selective nature of who gets tested, the true prevalence may differ from the reported figures.

- Wisconsin children found to have the greatest risk for lead poisoning include low-income children, Asian and African American children, and children of all races 1 to 3 years old.⁵
- In 2000, 8.3% of the lead tests for children statewide returned with an elevated blood lead level of 10 $\mu\text{g}/\text{dL}$ (micrograms per deciliter) or greater.
- In 2000, 23% of African American children tested for lead were reported with elevated blood lead levels compared to 9.7% of Asian children, 9.2% of Hispanic/Latino children, 4.1% of non-Hispanic white children, and 2.9% of American Indian children tested for lead.

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Table 49: Children (less than 6 years old) with elevated lead levels by race/ethnicity, Wisconsin, 2000

Race and Ethnicity	Number tested	Number ≥ 10 µg/dL	Percent ≥ 10 µg/dL	Percent of state total with lead levels ≥ 10 µg/dL
African American/Black	13,863	3,183	23.0%	54.3%
American Indian	929	27	2.9%	0.5%
Asian	2,178	211	9.7%	3.6%
Hispanic/Latino	8,430	773	9.2%	13.2%
White	27,637	1,124	4.1%	19.2%
Multiracial	213	18	8.5%	0.3%
Unknown race	17,457	529	3.0%	9.0%
Total tested	70,707	5,865	8.3%	100.0%

Source: Wisconsin Department of Health and Family Services, Division of Public Health, Childhood Lead Poisoning Prevention Program.

Notes

1. Northridge ME, Stover GN, Rosenthal JE, Sherard D. Environmental equity and health: understanding complexity and moving forward. *Am J Public Health.* 2003;93:209–214.
2. National Heart, Lung, and Blood Institute. *What is Asthma?* Available at: http://www.nhlbi.nih.gov/health/dci/Diseases/Asthma/Asthma_WhatIs.html. Accessed July 21, 2003.
3. Pappas G, Hadden WC, Kozak LJ, et al. Potentially avoidable hospitalizations: inequalities in rates between US socioeconomic groups. *Am J Public Health.* 1997;87:811–816.
4. Department of Health and Family Services, Bureau of Health Information. Wisconsin Interactive Statistics on Health. <http://dhfs.wisconsin.gov/eh/Asthma/facts.htm>
5. Wisconsin Childhood Lead Poisoning Prevention Program, unpublished data. Obtained October 2003.